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AMENDMENTS TO THE CLAIMS

(The following includes a complete listing of all claims with their current status indicated. Additional language is underscored; deletions are stricken through.)

1. (Previously Amended) A method of forming a dielectric layer on a semiconductor device comprising:

providing a substrate having at least one semiconductor layer;
forming a first conductive layer over at least a portion of the substrate;
depositing a silicon-containing material from a silicon source comprising a
silazane on the first conductive layer;

forming the dielectric layer by processing the deposited silicon-containing material with a reactive agent selected to react with silicon atoms of the deposited silicon-containing material; and

forming a second conductive layer over the dielectric layer.

- 2. (Canceled)
- 3. (Previously Amended) A method of forming a dielectric layer on a semiconductor device comprising:

providing a substrate having at least one semiconductor layer;
forming a first conductive layer over at least a portion of the substrate;
depositing a silicon-containing material from a silicon source selected from the
group consisting of hexamethyldisilazane, tetramethyldisilazane,
octamethylcyclotetrasilazine, hexamethylcyclotrisilazine, diethylaminotrimethylsilane
and dimethylaminotrimethylsilane.

4. (Original) The method of claim 1, wherein the silicon source comprises a self limiting hexamethyldisilazane source.

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- 5. (Original) The method of claim 1, wherein the reactive agent is selected from the group comprising NH₃, N₂, O₂, O₃, N₂O and NO.
- 6. (Original) The method of claim 1, wherein the dielectric layer is primarily nitride.
- 7. (Original) The method of claim 1, wherein the dielectric layer is primarily oxide.
- 8. (Original) The method of claim 1, wherein the dielectric layer is about 45Å or less in thickness.
- 9. (Original) A method of forming a dielectric layer on a semiconductor device comprising:

providing a substrate having at least one semiconductor layer;

fabricating the semiconductor device proximate to the substrate;

vapor depositing a silicon-containing material from a silazane source over at least a portion of the semiconductor device; and

forming the dielectric layer by processing the silicon-containing material in a reactive ambient.

- 10. (Original) The method of claim 9, wherein vapor depositing a silicon-containing material from a silazane source over at least a portion of the semiconductor device is repeated at least once prior to forming the dielectric layer by processing the silicon-containing material in a reactive ambient.
- 11. (Original) The method of claim 9, wherein the reactive ambient is NH₃.

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12. (Original) A method of forming a dielectric layer comprising:

providing a substrate having at least one semiconductor layer;

vapor depositing a silicon-containing material from a self limiting silicon source on at least a portion of the substrate, wherein said portion of said substrate is conductive; and

forming the dielectric layer by processing the silicon-containing material in a reactive ambient at a processing temperature, a processing time and a processing pressure selected to result in a desired dielectric constant and leakage characteristics.

- 13. through 25. (Canceled)
- 26. (Previously Amended) A method of forming a dielectric layer comprising:

 providing a substrate having at least one semiconductor layer;

 depositing a silicon-containing material from a silicon source comprising a
 silazane on at least a portion of the substrate, wherein said portion of said substrate is
 conductive; and

forming the dielectric layer by processing the silicon-containing material in a reactive ambient.

- 27. (Original) A method as claimed in claim 26 wherein said silicon source is self-limiting.
- 28. (Original) A method as claimed in claim 26 wherein said silicon-containing material is deposited in a plurality of layers.
- 29. (Original) A method as claimed in claim 26 including depositing a second dielectric layer over the dielectric layer.
- 30. (Original) A method as claimed in claim 26 wherein the silicon-containing material is vapor deposited.

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31. (Previously Amended) A method of forming a dielectric layer comprising: providing a substrate having at least one semiconductor layer; vapor depositing a silicon-containing material comprising a silazane on at least a portion of the substrate; and

forming a dielectric layer by rapidly thermally nitridizing the deposited siliconcontaining material in a nitridizing agent.

32. (Original) A method as claimed in claim 31 including depositing a second dielectric layer over the dielectric layer.